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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,221	03/18/2004	Shigenori Ito	811_045	5630
25191	7590	03/20/2006		
BURR & BROWN			EXAMINER	
PO BOX 7068			CREPEAU, JONATHAN	
SYRACUSE, NY 13261-7068				
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/803,221	ITO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jonathan S. Crepeau	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 12/2/05.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3, 5-16, and 18-33 is/are pending in the application.
- 4a) Of the above claim(s) 9-15 and 19-32 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3, 5, 7, 8, 16, 18, and 33 is/are rejected.
- 7) Claim(s) 6 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                     | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## **DETAILED ACTION**

### *Response to Amendment*

1. This Office action addresses claims 1-3, 5-16, 18-32, and newly added claims 33. Claims 9-15 and 19-32 remain withdrawn as being drawn to a nonelected invention. Claims 1-3, 5, 7, 8, 16, 18, and 33 are newly rejected under 35 USC 103 as necessitated by amendment.

Accordingly, this action is made final.

### *Claim Objections*

2. Claims 5, 6, 8 and 18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 5, 8 and 18 recite that the ceramic dense body is a solid electrolyte film. However, this is not further limiting of the parent claims in the event that the ceramic dense body comprises lanthanum chromite, which is an interconnector material. Similarly, claim 6 recites that the laminated sintered body is a conductive interconnector whereas parent claim 1 recites materials such as yttria-stabilized zirconia which are not disclosed as usable for interconnectors. Correction is required.

3. Applicant is advised that should claim 8 be found allowable, claim 33 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 103***

4. Claims 1-3, 5, 7, 8, 16, 18, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al (U.S. Pre-Grant Publication No. 2001/0038936) in view of JP 2000-062077.

As shown in Figure 44(a), Nishi et al. is directed to layered solid oxide fuel cells comprising an air electrode (15) interconnector (14), fuel electrode (12) and substrate (11). The electrolyte may comprise yttrium-stabilized zirconia (YSZ), the fuel electrode may comprise a NiO/YSZ system material, and the air electrode may comprise a lanthanum manganese system material (see paragraph 3). The latter fairly suggests the claimed “lanthanum-containing perovskite-type complex oxide.” The fuel cell laminates of the reference can be made by a printing or coating step, a cold pressing step, and a co-sintering step (see pars. 0019, 0082 of the reference). Claims 3 and 16 are considered to be product-by-process claims that do not produce a structure distinguishable from that of the reference.

Nishi et al. do not expressly teach that the porous air or fuel electrode have a thickness of at least 300 microns, or that the electrolyte has a thickness of less than 25 microns, as recited in claim 1. The reference further does not teach that the laminated sintered bodies have an area of 60 square centimeters as recited in claim 2.

However, the artisan would be motivated to use a relatively thick fuel or air electrode and a relatively thin electrolyte in the apparatus of Nishi. A thicker electrolyte would provide increased mechanical strength, while a thinner electrolyte would provide decreased internal resistance. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). As such, the claimed thicknesses are not considered to distinguish over the reference. Regarding claim 2, the recitation of an absolute size (surface area) of the sintered body is also not considered to distinguish over the reference. Generally, an artisan would be able to scale up or down the size of an apparatus depending on its intended use, among other factors. See MPEP 2144.04.

Nishi et al. further do not expressly teach the claimed helium leakage rate of the zirconia electrolyte layer as recited in claim 1.

JP 2000-062077 is directed to a laminated body comprising a porous sintered SiN layer (2) and a dense yttria-stabilized zirconia layer (1) (see abstract, Fig. 1). In paragraphs 0025 and 0041, the reference teaches that the dense layer has a helium leakage rate of  $5 \times 10^{-9}$  atm cc/s ( $5 \times 10^{-10}$  Pa m<sup>3</sup>/s). The YSZ film functions as an electrolyte film.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use a YSZ electrolyte in the fuel cell of Nishi et al. having the helium leakage rate disclosed by JP '077. In paragraph [0025], JP '077 teaches that high airtightness is advantageous, and that if the gas airtightness value is too low, there will be too much gas penetration. As such, the artisan would be motivated to use a YSZ electrolyte in the fuel cell of Nishi et al. having the helium leakage rate disclosed by JP '077.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Primary Examiner  
Art Unit 1746  
March 16, 2006